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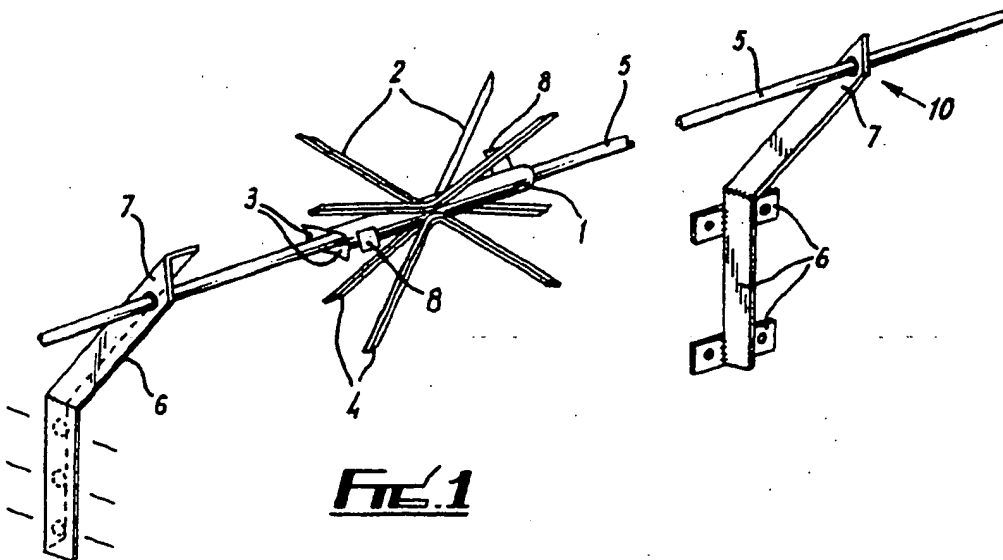
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(54) Intruder barrier

(57) An intruder barrier for mounting on a wall or fence to deter climbing, comprises an axle (5) which is rotatable on its supporting members (6) and on which are rotatable sleeves (1) provided along their length with protruding spikes (4) arranged alternately in opposite directions at acute angles to the axle.



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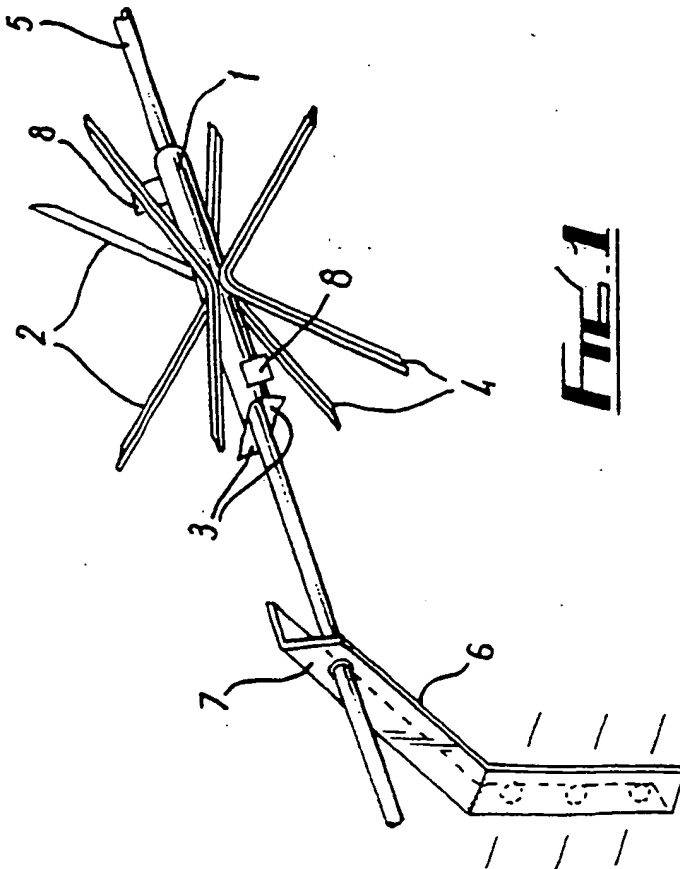
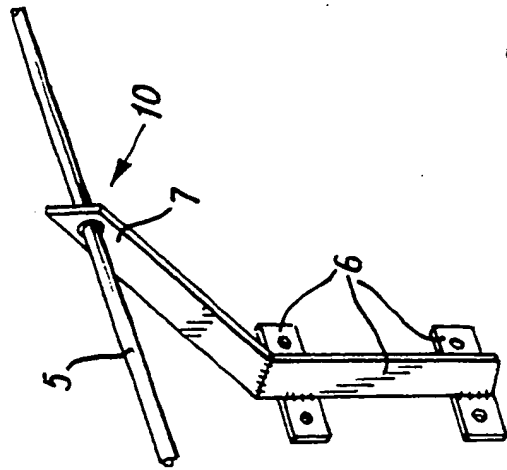


Fig. 1

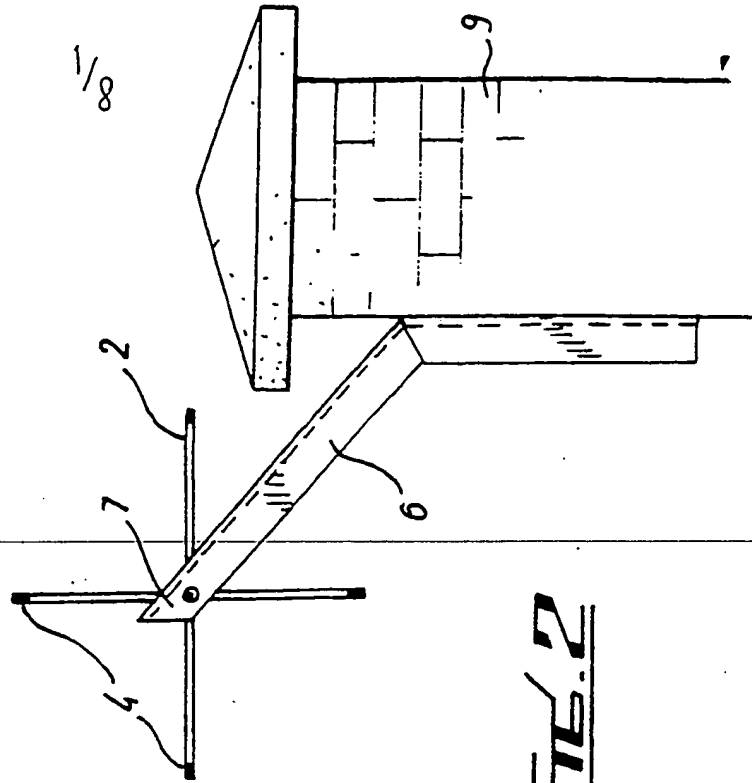


Fig. 2

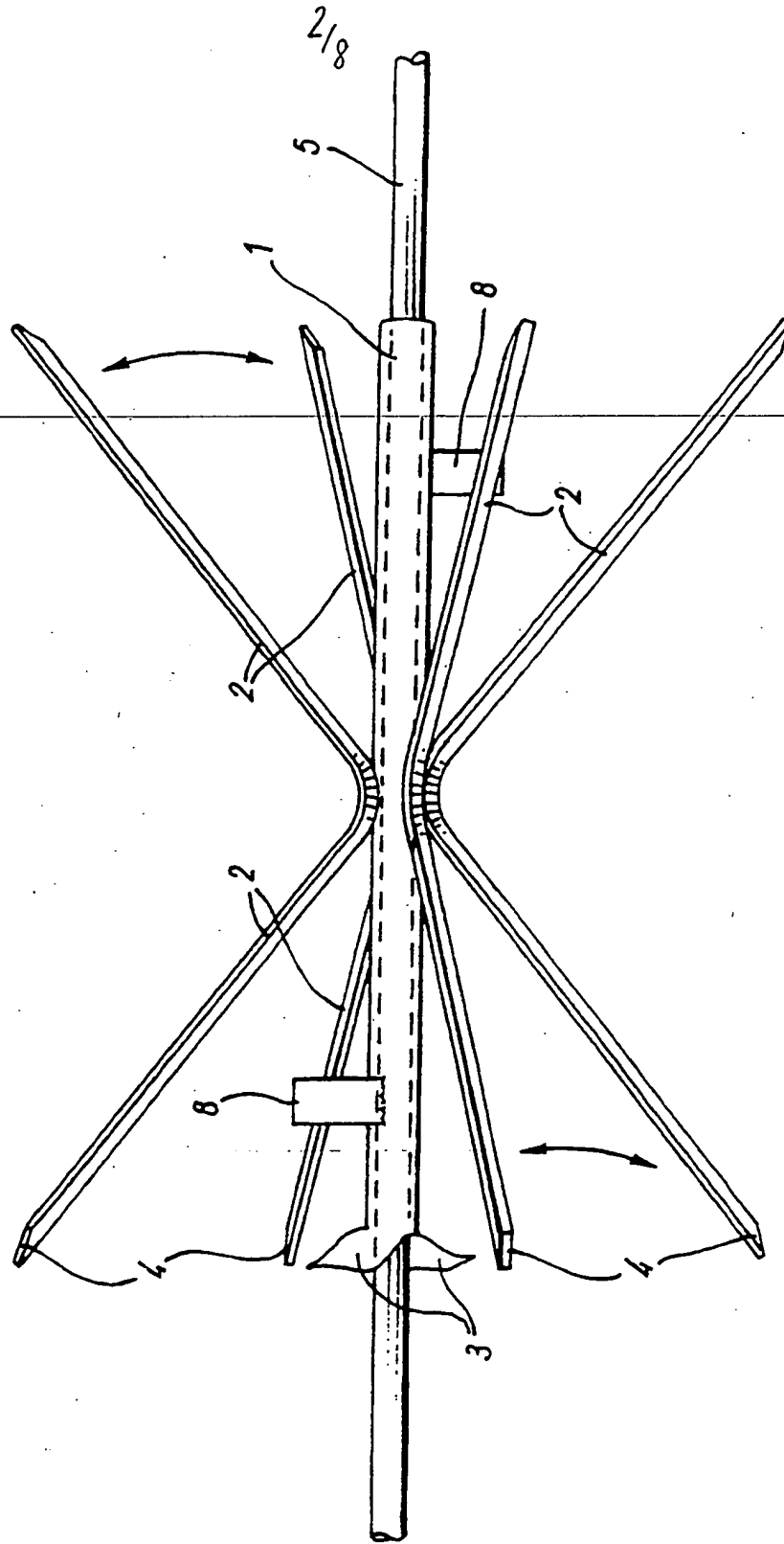


Fig. 3

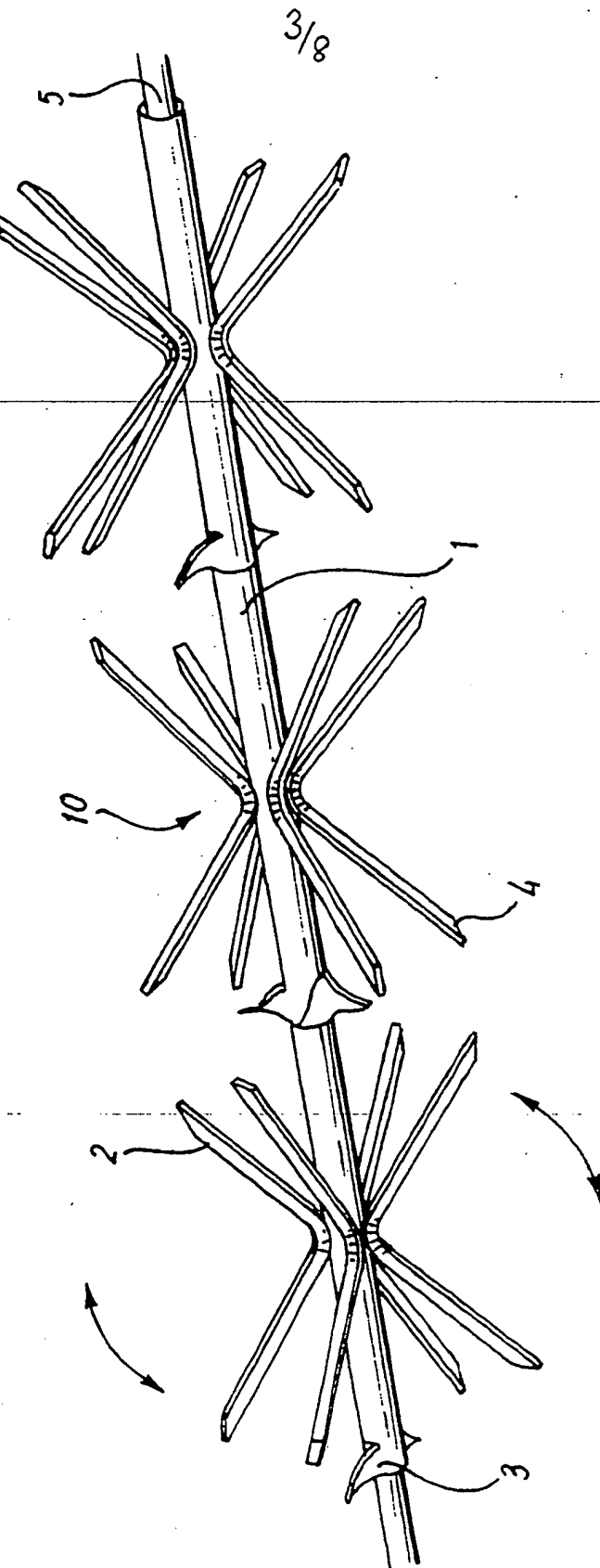


FIG. 4

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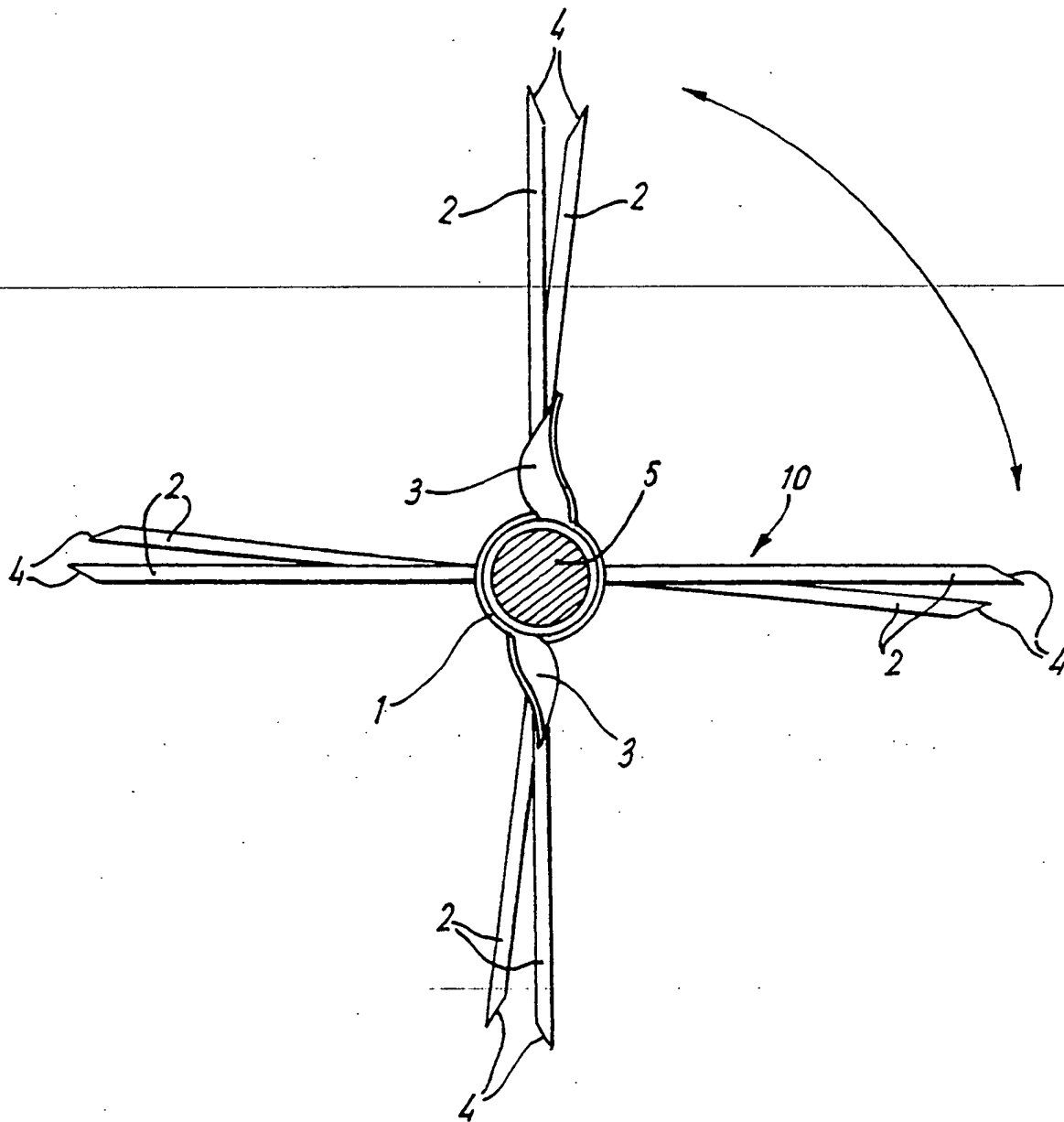


FIG. 5

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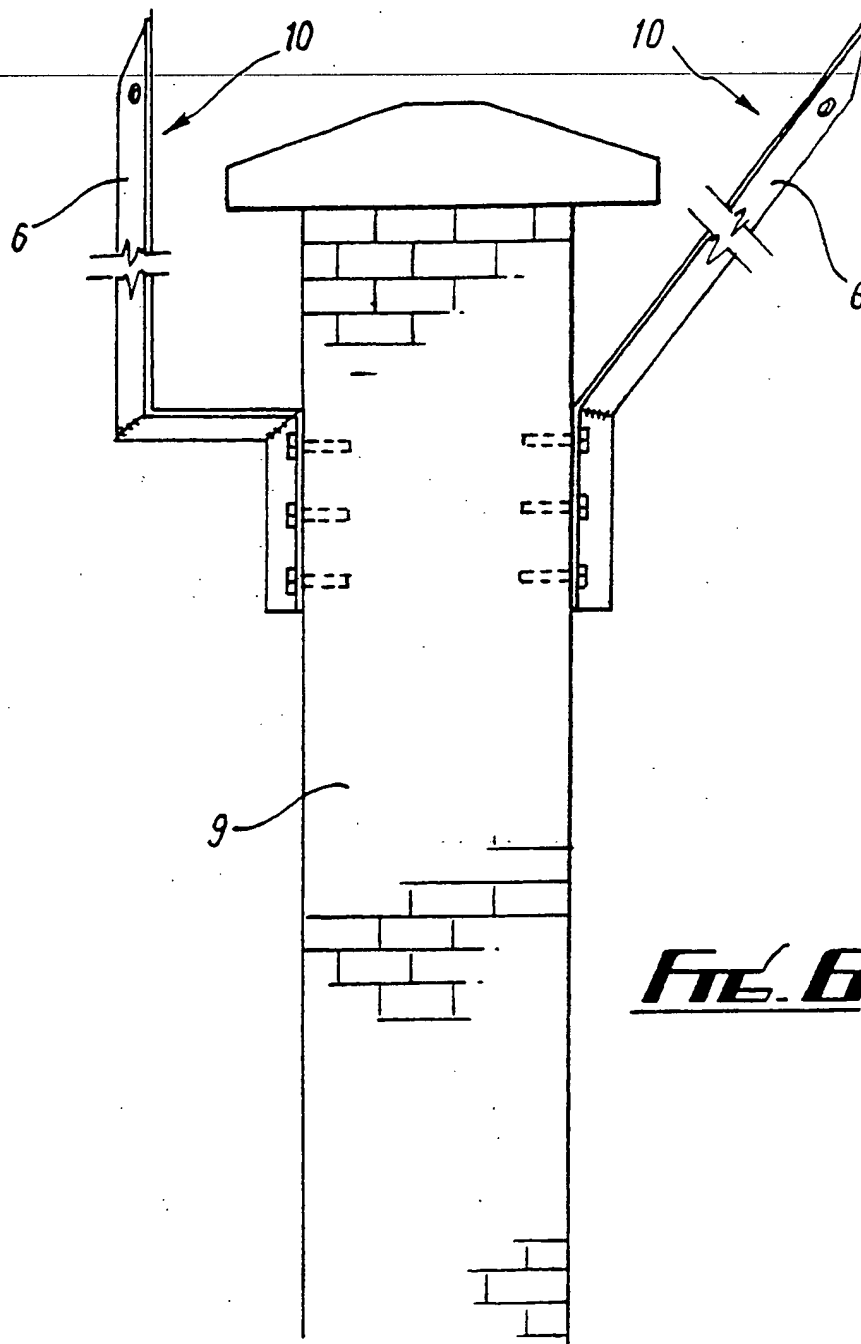


FIG. 6

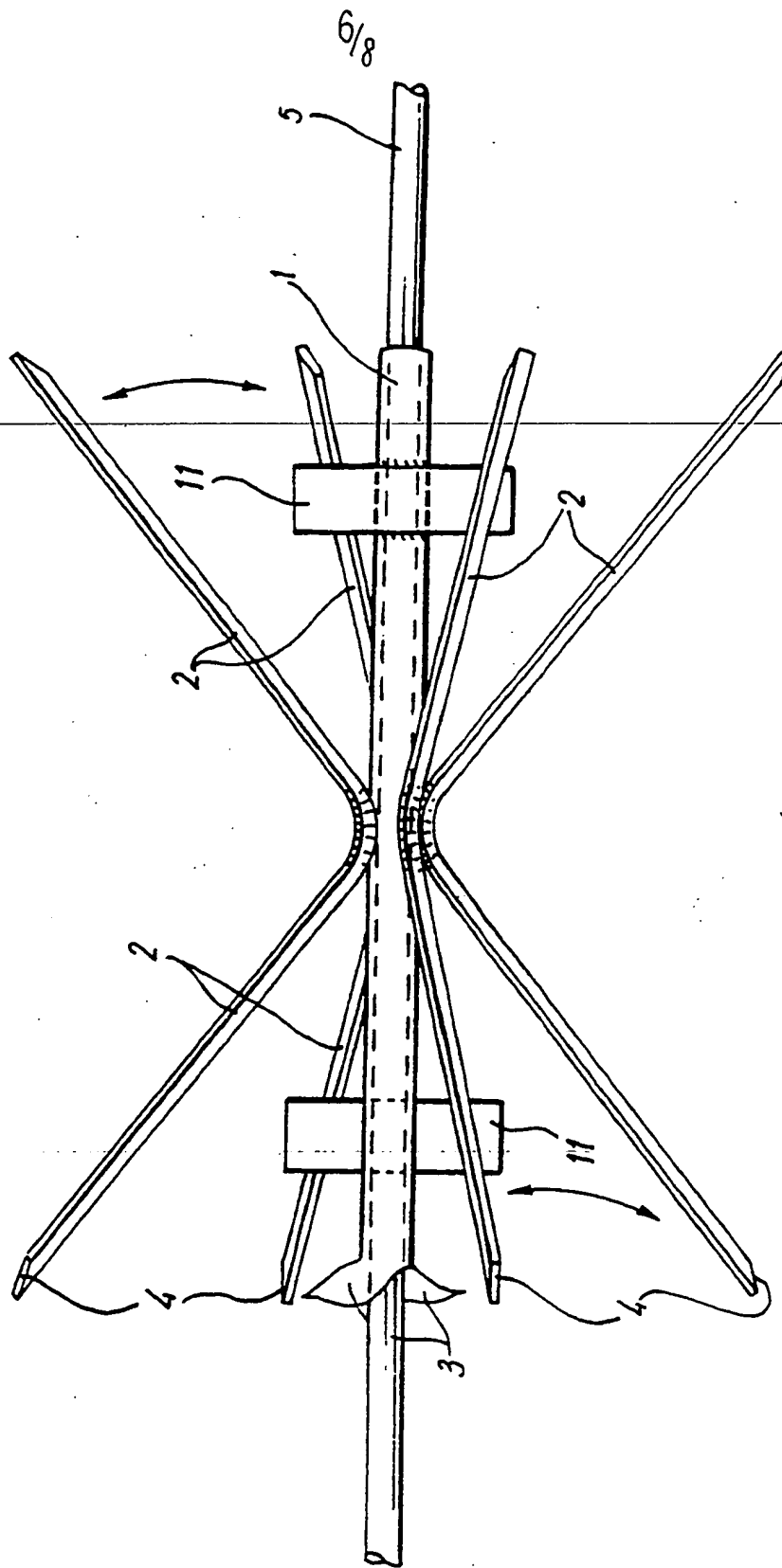


FIG. 7

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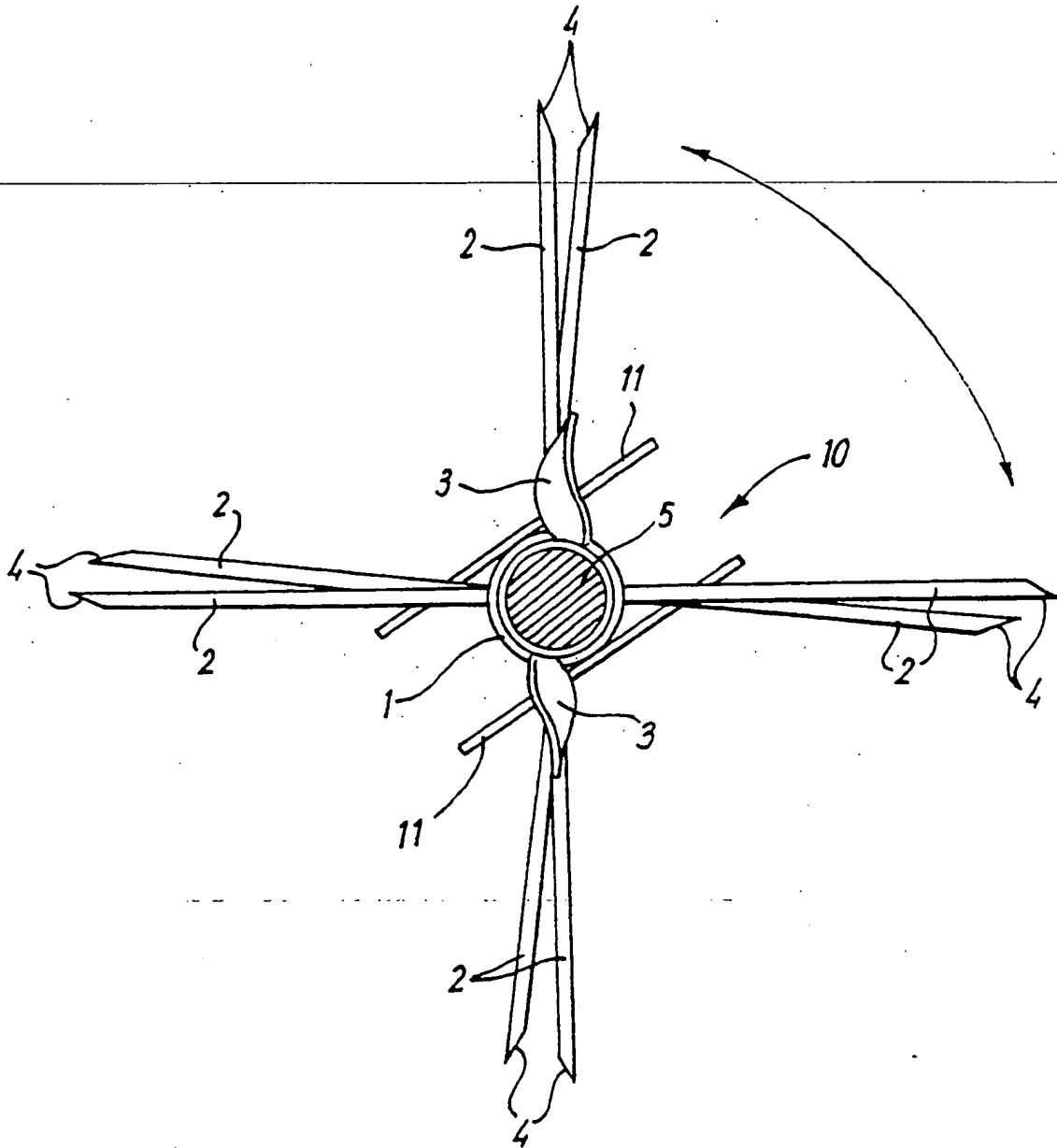


FIG. 8

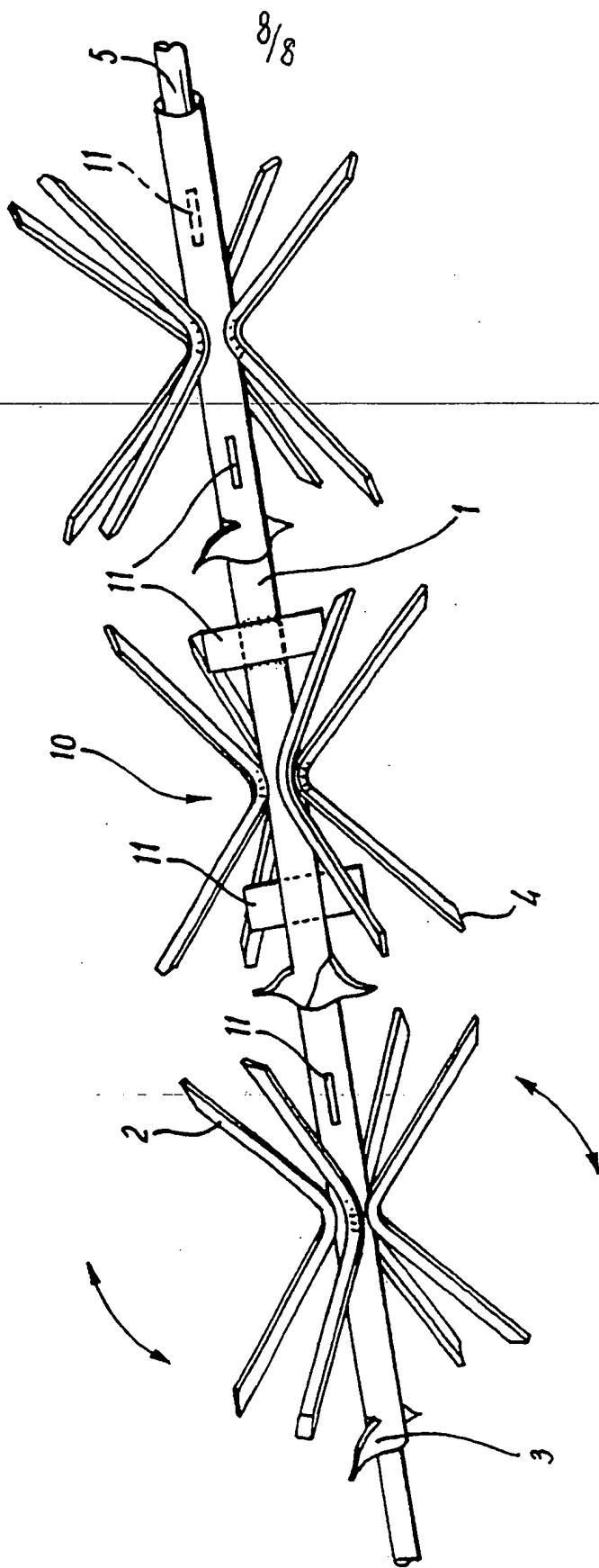


Fig. 9

1 **ANTI-INTRUDER BARRIER**

2
3 This invention relates to an anti-intruder barrier.

4
5 Anti-intruder barriers are well known and examples are
6 given in prior art documents GB2256207 and GB2076038 as
7 well as other systems, for example barbed wire systems
8 and U-staple systems.

9
10 Some systems use spinning components which often become
11 stiff and sometimes lock due to close fitting
12 components and corrosion of ungalvanised axles. Some
13 systems use hollow sections of the spikes which allow
14 water to be trapped inside and cause corrosion from the
15 inside of the barrier.

16
17 Systems using expanded weld mesh and similar materials
18 can be manipulated by threading wire through the mesh
19 then tying it back thus preventing rotation.

20
21 Some systems, for example as described in GB2256207
22 attempt to keep the spaces between the spikes below the
23 width of a clenched hand which is about 65 cm to
24 restrict an intruder from getting a hold on the
25 barrier; however, the space is still fairly large and

1 can provide some form of grip for a would be intruder.
2 Other systems try to reduce the use of the space
3 between each spinner and spike by placing square
4 washers or studded spacers on the system at great
5 expense.

6
7 According to the present invention there is provided an
8 anti-intruder barrier comprising a plurality of spikes
9 mounted on a sleeve, the sleeve being rotatable on an
10 axle and the axle in turn being rotatable on its
11 supporting members, wherein the spikes are disposed at
12 acute angles to the long axis of the axel in alternate
13 directions thus covering the entire length of the
14 barrier with rotating spikes.

15
16 Preferably, the spikes are of solid square or round
17 cross-section and are welded to the rotating sleeve.

18
19 Preferably, each rotating sleeve has a sequence of
20 spikes comprising four pairs of spikes, each pair
21 having two spikes disposed at approximately 90° to one
22 another, the four pairs being spaced circumferentially
23 around the rotating sleeve.

24
25 Preferably, the distance between each sequence of
26 rotating spikes and therefore each sleeve at their
27 outer most points is kept to a minimum.

28
29 Preferably, each end of the rotating sleeve is splayed
30 reducing the contact friction between adjacent rotating
31 sleeves and producing protruding sharp pointed edges as
32 a further deterrent.

33
34 Preferably, the spikes project to a distance of
35 approximately 400 millimetres from the axel.
36

1 Preferably, each rotating sleeve carries two
2 projections additional to the spikes further preventing
3 a hand or foot hold on the rotating sleeve.

4
5 Preferably, all parts of the barrier are galvanised or
6 zinc plated for protection against corrosion.

7
8 Embodiments of the present invention will now be
9 described with reference to the accompanying drawings
10 in which:

11
12 Fig 1 is a perspective view of an anti-intruder
13 barrier in accordance with the present invention;

14
15 Fig 2 is an end elevation of the anti-intruder
16 barrier of Fig 1;

17
18 Fig 3 is a side elevation of a rotating sleeve and
19 the spikes of the anti-intruder barrier of Fig 1;

20
21 Fig 4 is a side elevation of an anti-barrier
22 showing a number of the rotating sleeves on a
23 single axel;

24
25 Fig 5 is an end elevation of a rotating sleeve of
26 an anti-intruding barrier in accordance with the
27 present invention; and

28
29 Fig 6 is a schematic representation of the
30 supporting means of the axel of an anti-intruder
31 barrier in accordance with the present invention.

32
33 Fig 7 is a side elevation of a second embodiment
34 of an anti-intruder barrier in accordance with the
35 present invention;

36

Fig 8 is an end elevation of the anti-intruder barrier of Fig 7; and

Fig 9 is a side elevation of a number of the anti-intruder barriers of Fig 7.

Referring to the drawings, an anti-intruder barrier 10 has been designed so as to require the minimum installation whilst maintaining the maximum deterrent to would be intruders. The barrier 10 is intended for new and existing walls, railings and metal fencings.

The barrier 10 has an axel 5 supported at each end by a support bracket 6. The axel 5 is free to rotate on the support brackets 6. A number of rotating sleeves 1 are disposed axially along the axel 5 such that the rotating sleeves 1 are free to rotate about the axel 5.

Each sleeve 1 has a number of spikes 2 welded onto it. The spikes 2 are formed in pairs, each rotating sleeve 1 supporting four pairs of spikes 2. Each pair of spikes 2 has two spikes 2 disposed at approximately 90° to each other. The pair of spikes 2 is welded to the rotating sleeve 1 at the 90° angle such that the two spikes 2 project from the rotating sleeve 1 each at an angle of approximately 45° to the sleeve 2. The spikes 2 point in the direction of the axis of the axel 5 each adjacent spike 2 along the axel 5 pointing in an opposite direction along the axel 5.

The four pairs of spikes 2 are regularly circumferentially disposed about the rotating sleeve 1.

The spikes 2 are made of sold square or round cross sectioned material of approximately 10 millimetre width. The pairs of spikes 2 are formed from a single

1 length of material bent at right angles to from two
2 spikes 2. The spikes 2 form a rotating barrier of
3 approximately 400 millimetres.

4
5 The rotating sleeve 1 has splayed ends 3 at each end of
6 the sleeve 1. The splayed ends 3 reduce the friction
7 between the contacting ends of each sleeve 1 and also
8 enhance the deterrent effect of the barrier 10 in
9 appearance and appliance due to the sharp pointed edges
10 of the splayed ends 3. In addition the outer edges 4
11 of the spikes 2 are formed with pointed edges as a
12 further deterrent to intruders.

13
14 The axel 5 is made from 16 millimetre solid square or
15 round bar. The rotating sleeve 1 is formed of a 25
16 millimetre hollow section. Thus the difference in size
17 between the sleeve 1 and the axel 5 allows the two
18 components a large amount of relative movement. The
19 contact between the surfaces of the axel 5 and the
20 sleeve 1 are minimised thus reducing the effects of
21 corrosion.

22
23 The support brackets 6 supporting the axel 5 can be
24 positioned at equal spaces along the axel 5. This
25 arrangement is particularly applicable if the barrier
26 10 is to be attached along a wall 9. The outer edges 7
27 of the support brackets 6 are pointed to impede a foot
28 or hand hold. In addition to the spikes 2, the
29 rotating sleeve 1 has two anti-grip fins 8 which are
30 welded at opposite ends of the sleeve 1 at opposite
31 sides of the sleeve 1 to one another.

32
33 The distance between the edges 4 of the spikes 2 is
34 such that a hand hold cannot be gained between the
35 spikes 2. The ends 4 of the spikes 2 are separated by
36 only a distance of approximately 20 millimetres, the

1 approximate width of an adult finger, removing the
2 possibility of gaining a hand or foot hold between the
3 spikes 2.

4
5 The support brackets 6 shown in Fig 6 may be of a
6 variety of forms which result in the axel 5 being
7 supported a distance above and to one side of the wall
8 9.

9
10 In use the barrier 10 is mounted by means of the
11 support brackets 6 to a wall 9. The rotating sleeves 1
12 are mounted on the axel 5 such that they are placed end
13 to end such that the ends 4 of the spikes 2 are
14 adjacent on another preventing a hand or foot hold
15 between the spikes 2. The rotating sleeves 1 are free
16 to rotate about the axel 5 and the axel 5 is free to
17 rotate on the support brackets 6 such that no hold can
18 be obtained on the spikes 2. The angling of the spikes
19 2 away from the axel 5 whilst the spikes 2 run in the
20 direction of the axis of the axel 5 result in a greater
21 length of the axel 5 being protected by the spikes 2.

22
23 In a second embodiment of the anti-intruder barrier
24 shown in Figs 7 to 9, the barrier has additional
25 projections 11 which replace the anti-grip fins 8 of
26 the previous embodiment. The projections 11 are in the
27 form of flat rectangular pieces of metal which are
28 attached at the centre of the rectangle to opposite
29 sides of the rotating sleeve 1 with each half of the
30 rectangle projecting perpendicularly to the rotating
31 sleeve 1. The projections 11 provide a further to an
32 intruder and removes a possible hand or foot hold.

33
34 The projections 11 are positioned on the rotating
35 sleeve 1 such that the projections 11 are pointing
36 between two of the pairs of spikes 2 (Fig 8).

1 When a number of rotating sleeves 1 are disposed on the
2 axle 5, the projections 11 are arranged such that the
3 projections 11 on each adjacent sleeve 1 are pointing
4 in orthogonal directions.

5

6 Improvements and modifications to the above can be made
7 without departing from the scope of the invention.

8

CLAIMS

1. An anti-intruder barrier comprising a plurality of spikes mounted on a sleeve, the sleeve being rotatable on an axle and the axle in turn being rotatable on its supporting members, wherein the spikes are disposed at acute angles to the long axis of the axle in alternate directions thus covering the entire length of the barrier with rotating spikes.

2. An anti-intruder barrier as claimed in Claim 1

wherein the spikes are of solid square or round cross-section and are welded to the rotatable sleeve.

3. An anti-intruder barrier as claimed in Claim 1 or 2 wherein each rotatable sleeve has a sequence of spikes comprising four pairs, each pair having two spikes disposed at approximately 90° to one another, the four pairs being spaced circumferentially around the rotating sleeve.

4. An anti-intruder barrier as claimed in Claim 3 wherein the distance between each sequence of rotating spikes and therefore each sleeve at their outer most points is kept to a minimum.

5. An anti-intruder barrier as claimed in any proceeding Claim wherein each end of the rotatable sleeve is splayed reducing the contact friction between adjacent rotating sleeves and producing protruding sharp pointed edges as a further deterrent.

6. An anti-intruder barrier as claimed in any preceding Claim wherein the spikes project to a

distance of approximately 400 millimetres from the axle.

7. An anti-intruder barrier as claimed in any preceding Claim wherein each rotatable sleeve carries projections additional to the spikes further preventing a hand or foot hold on the rotating sleeve.

8. An anti-intruder barrier as claimed in Claim 7 ~~wherein the additional projections are two fins~~ attached at opposite ends of the rotatable sleeve and at opposite sides to each other.

9. An anti-intruder barrier as claimed in Claim 7 wherein the additional projections are flat metal pieces attached at their centre at opposite ends of the rotatable sleeve.

10. An anti-intruder barrier as claimed in any preceding Claim all parts of which are galvanised or zinc plated for protection against corrosion.

11. An anti-intruder barrier as claimed in any preceding Claim which is site-assembled.

12. An anti-intruder barrier substantially as herein before described with reference to the accompanying drawings.

The Search report

Relevant Technical Fields

(i) UK Cl (Ed.N) E1D (DFIO9)

(ii) Int Cl (Ed.6) E04H

Search Examiner
D LOVELLDate of completion of Search
1 AUGUST 1995

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE DATABASE: DERWENT WPI

Documents considered relevant
following a search in respect of
Claims :-
1 TO 12

Categories of documents

X:	Document indicating lack of novelty or of inventive step.	P:	Document published on or after the declared priority date but before the filing date of the present application.
Y:	Document indicating lack of inventive step if combined with one or more other documents of the same category.	E:	Patent document published on or after, but with priority date earlier than, the filing date of the present application.
A:	Document indicating technological background and/or state of the art.	&:	Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
A	EP 0242092 A2 (HERCULES SECURITY FABRICATIONS LTD) note rotatable sleeve 34	